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## ANCIENT HABITATIONS OF THE SOUTHWEST.

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After extended research and a brief review of the written accounts bearing upon the subject of the ancient habitations of the southwest, it must be confessed that, until very recently, nothing was actually known concerning the ruins and relics it is now our task to describe in detail. Nor does it seem that we are yet in possession of material sufficiently extensive to warrant positive conclusions concerning the unity or non-unity of the ancient cave- and cliff-dwellers and the inhabitants of the present pueblos. On this subject written history is mute and legend is confused and misty. Judgment must therefore await the slow and careful plodding of compositive ethnology, to sift evidences, compare and contrast the similar works of art, and find, if possible, the links that bind the present to the past. Herein is, at least, safety.

As one of the principal objects which I proposed to accomplish this year was an exploration of the cliff-dwellings within the Cañon de Chelly, a party under my direction was organized at the house of Mr. Thomas V. Keam, consisting of the following persons :

Mr. J. K. Hillers, photographer ; Mr. B. Wittick, photographer ; Mr. Victor Mindeleff, ethnologic ass't ; Mr. A. G. Gustin, ethnologic ass't ; Mr. E. A. Oyster, ethnologic ass't ; Mr. J. Stanley Brown, disb'g agent.

Mrs. Stevenson, and Messrs T. V. Keam, J. McEwell,

and Col. H. C. Rizer, of the Eureka, Kansas, *Herald*, also accompanied the party, which was completed by the addition of four soldiers of the Thirteenth Infantry, kindly detailed for the purpose by Gen'l Bradley at Fort Wingate, N. M., two teamsters and their teams, and two Navajo Indians as guides.

Setting out from Mr. Keam's ranch we proceeded in a northeasterly direction across a broken country, and after a journey of fifty-six miles reached the mouth of the cañon near the western edge of the Navajo reservation. To our surprise we found that the stream which occupies the bed of this famous chasm during the rainy season was entirely dry, and that a bed of loose sand extended from one wall to the other of the cañon. These walls, quite low at the extreme entrance, became higher and higher as we advanced farther in, and were formed of a rich red sandstone, which was streaked and variegated with dark-red, purplish, and blackish discolorations, caused by the trickling down of water from above and by the action of the weather upon the metallic oxides contained in the rock.

The cold wind that had been blowing during our passage across the plain seemed to eddy in the confined space of the cañon, assailing us in the most uncomfortable manner as we rode onward. The wagon and other vehicles of our party sank deeply into the sand, rendering it extremely difficult for our animals to draw them. I pushed on ahead with the intention of selecting a place for our camp some five miles up the cañon, but found after proceeding about two miles that the wagons would not be able to go farther. Hereupon, finding a sheltered recess on the north side, I awaited the arrival of the party with the teams. I discovered that a Navajo

had recently been here before me. He had built his hut on a sloping sand-dune, had formed a corral and dug a water hole for his animals at the foot of an immense tower-like rock. Here was also pretty fair grass for our animals. In due time the party arrived, glad enough to find even a partial shelter, for the weather was cold, and at sunset the clouds gave ominous signs of rain. The wind swept in whirling eddies around us so fiercely and unsteadily as to render it extremely difficult to cook our supper. Every gust of wind came freighted with its full cargo of sand, so that every mouthful of our food was highly seasoned with grit. Had our stomachs been gizzards we should have delighted in this addition to our repast. They were only stomachs, however, and could not appreciate this extra delicacy. Still each determined to make the best of the situation and to laugh discomfort out of company. Out-door exercise brought hunger, and hunger is an all sufficient condiment. We ate and were satisfied. Dinner over, we all gathered around the fire to crack jokes with the Navajos, who had flocked around us and were feasting off the remains of our meal. They were very friendly, but seemed very much puzzled to account for our being there. By eight o'clock every one had spread his blankets in the most sheltered spot he could find and gone to sleep, perhaps to dream of love's *ritornello*.

The night passed without rain, and as soon as an early breakfast was over we started up the cañon. The sand was very deep, and the morning was cloudy and cold, and as we plodded slowly along squalls of rain and hail succeeded each other every few minutes. About a mile above our camp we came to the first cave with ruins in it.

It was situated on the north side of the cañon near the mouth of another large one which branched from it. Into this we entered. According to our guide's report, it had never before been explored by white men. I afterwards gave it the name of Cañon de los Muertos, or "of the dead," in commemoration of certain discoveries there made, which will be related further on. Leaving Mr. Mindeleff, aided by one of the guides, Navajo George, to climb up to the first cave and make a sketch of the interior and ground plan of the ruins, while another sketch of its position in the cliff was taken from below, I pressed forward with the rest of the party. From this point onward there was a continual succession of caves and rocky shelves, sheltered by overhanging cliffs. All these contained ruins of greater or less magnitude, and the greater part of them were at heights varying from fifty to one hundred feet above the base of the cliff, and mostly on the north side of the cañon. Several very notable ones were, however, discovered on the south side. Among these latter was a group of small houses in a huge fissure, which appeared to be at least 300 feet above the cañon bed. As we went farther up the stream the walls of the gorge increased in height, until at a distance of twelve miles from the mouth, where we encamped for the night, they were not less than 600 feet high, with an aspect of stupendous grandeur. Here we went into bivouac for the night. *October 11.*—The nakedness and aridity which we had noticed at the mouth of the cañon had been gradually giving place, first to moisture, then to coarse grass beneath the frowning cliffs. Now and then a stunted and scarred cottonwood put in an appearance. Its foliage, perhaps from contrast with the

red and purple colors of the rocks and the gray sand of the river bed, was most brilliantly green. Still farther on, a trickling stream made its appearance, and farther still this became a brook of good size, and vegetation became better and stronger. Pines and cedars grew in the clefts and high up among the fallen rocks upon the foot-slopes, and small groves of cottonwood and diminutive oaks grew in the sandy bottom that bordered the river bed. Here and there a small group of peach trees, planted by the Navajos, enriched and enlivened the coloring of the landscape, while the prickly pear became very uncomfortably abundant. This night our camp was almost directly in front of one of the huge oven-like caves. We named it the "Royal Arch." Around the lower part of this extended a shelf, and on this shelf we found the remains of a village. Several small buildings still remained standing to testify of what all once were, but by far the greater part were in utter ruins. Our search in this old-time building was rewarded by finding two worn sandals, very like the "alpargatas" now in use in Mexico and some parts of South America. They were made of the fibre of the yucca. One of them was ornamented with a design in colors woven into the texture of the article. There were also found several pieces of well-constructed cord made of the same fibre, and one piece made of what appeared to be rabbit-fur enwrapped with the split shafts of feathers. But the most interesting discovery of all awaited our search two miles farther up the canon. There, at the entrance of a canon from the north, in a huge cliff of red sandstone, the outlines of which suggested the figure of a crouching lion, or, as some of our party thought, of a sphinx, we

found an immense double cave containing the well-preserved remains of a village, which actual measurements, made on the two succeeding days, showed to be larger than some of the present Moqui towns. This double cave itself presented some very remarkable features. The huge main cave is divided by a rock projection into two smaller ones of unequal size, the roofs of which, seen from the front, are elliptic arches. Around the interior of these smaller caves, and passing in front of the buttress-like projection that separates them, runs, at a height of about 100 feet above the bed of the stream, a shelf continuous from end to end, ten feet wide at its extremities, then narrowing, and again widening in the centre of each cave. Its figure, as viewed from end to end, is somewhat like to crescents with their concavities turned cañonward, and united by a long parallelogram. The entire shelf somewhat rudely reminds one of Cupid's bow.

This shelf is accessible by climbing a steep bank of sand and broken stones which have fallen from above. On ascending it we found it covered with ruined dwellings and chambers. Among these latter in the right-hand cave are four circular chambers or *estufas*. On the portion in front of the dividing rock is built what appears at a little distance to be a castle, or fortress, with a tower of three stories, twenty-eight feet high. This stands at the end next the larger cave, while at the other end stands a similar tower, the two connected by a range of buildings one story in height. All this is very clearly shown in one of the sketches made by us; so also is the general appearance of the large cave with its two internal ones and the range of ruins within them. The buildings

are all made of stone laid in quite regular courses and cemented with clay. The three-story tower and the buildings in the centre, and the *estufas* in particular, show very excellent workmanship, although these last are very dilapidated, but little of their walls remaining upright. The large tower presents the peculiarity of being accessible only by passing through the interior of all the range of lower houses adjoining it, which open from one into another, the entrance to the whole range being through a low door in the smaller tower at the other end. Mr. Victor Mindeleff, of our party, made an accurate survey of the ruins with a view to modelling them. Mr. Hillers made some very fine large photographic views of the interior of the cave, and Mr. Gustin made water-color drawings of the cliff and cave from the exterior; so that from the combined works of these gentlemen a very accurate idea of the ruins and their surroundings can be gained. A very interesting discovery was made by Mr. J. Stanley Brown while climbing a pile of débris which gave access to the larger cave. Noticing some pieces of wood projecting from the rubbish, he cleared away the sand and stones with his hands, and found that he had come upon the corner of a small enclosure. Digging still farther, he discovered a burial crypt of a pentagonal form, composed of small wooden logs and lined with flat, irregular slabs of stone. This enclosure contained two skeletons, which had apparently been buried in a sitting, or rather a squatting, posture, the knees drawn upward toward the chin and the hands crossed on the breast. The dried flesh still covered the bones of the greater part of the body, which was enveloped in a coarse net made of some vegetable fibre. A



few grains of Indian corn were found in the grave, but no pottery, ornaments, nor arms of any kind. The bodies were carefully taken out of the crypt and preserved for future study. It should here be noted that in an article upon the "Human Remains Found among the Ancient Ruins of Southwestern Colorado and Northern New Mexico," published in the Bulletin of the Geol. and Geog. Survey of the Terr., vol. ii., No. L., Dr. Emil Bessels, commenting upon the statement of Mr. Holmes, that the skeleton to which he refers was apparently buried in a squatting position, says: "We do not doubt that the position in which the bones were found indicated a squatting posture of the skeleton, but it is not probable that this posture was commonly in use for burying the dead." This opinion of Dr. Bessels does not appear to be borne out by the facts, as will be seen from the article upon "Modes of Burial," in Smithsonian Contributions to Knowledge, vol. xxii., p. 32, *et seq.*, where this practice is proved to have prevailed over the whole continent of America. From this article I quote as follows: "Dr. Morton, in his 'Crania Americana,' gives as an additional evidence of the unity of race and species in the American savage nations, the singular fact that from Patagonia to Canada, and from ocean to ocean, and equally in the civilized and uncivilized tribes, a peculiar mode of placing the body in the sepulchre has been practiced from time immemorial. This peculiarity consists in the sitting posture." Dr. Morton describes the mummy of a Muysca Indian of New Granada in these words: "In this instance the body is in a sitting posture, the legs being flexed against the abdomen and the feet turned inwards. The arms are also bent so as to touch the chest, the chin being sup-

ported in the palms of the hands and the fingers received into the hollow beneath the cheek bones." It is needless to call attention to the similarity of this posture to that of the skeleton found in this cave.

He further says that the body is not embalmed but only desiccated, yet the muscles are so well preserved as to render it probable that some antiseptic fluid may have been applied to them. Another instance of this custom, in addition to the many given in the above-mentioned article, is to be found in the report of the Archæological and Ethnological Investigations of Dr. S. Habbell, published under the number 269 in *Smithsonian Contributions*, vol. xxii., p. 32. In an excavation made by him in the square of the village of Apaneca in the State of San Salvador, Central America, he came, by good-fortune, upon an ancient grave. It was formed by four porphyritic slabs more than three feet long and two feet wide, standing upright in a kind of semicircle, and another slab lying horizontally at the bottom of the grave. After the removal of the earth to the depth of about three feet the interred body was reached. All the bones were so brittle as to crumble at the slightest touch. By removing the earth with his hands with the greatest care the clavicles, as well as the bones of the arms and thighs, especially the head of the latter, could be seen. They showed that the body was buried in a crouching position. At page 62 he says: "We opened one grave (at the Bay of Paraca in Peru); after the removal of the sand to the depth of two feet and a half we came to the body in a crouching posture encircled by pieces of split bamboo."

Having given as much time to the examination of the caves in the Cañon de los Muertos as circumstances would

allow, some time before noon on the 13th of October we broke camp and moved down the gorge to its junction with the main cañon, and up this latter. We had hardly begun our march when the wind began to blow, and kept on increasing in violence, carrying before it clouds of loose sand and even small pebbles, until at times it was with great difficulty that we could face it. We bivouacked in the main Cañon de Chelly, about five miles above the mouth of the branch Cañon de los Muertos, the wind and sand giving us a most uncomfortable night. On the way up we passed four important groups on the northern side of the chasm, all of them in caves varying from twenty to fifty feet from the bed of the cañon; but the sandstorm that raged around us prevented any examination of them on this day. The next day we moved three miles farther up, encamping in a branch that enters from the south, near the foot of the great isolated, obelisk-like rock, which we called "The Monument." This "monument" and another columnar buttress of almost equally striking appearance on the opposite side are called the "Captains of the Cañon" by the Navajos. Three other large caves, full of ruins, were seen and sketched to-day, but were too high up to be accessible without special apparatus for climbing. The next two days were spent in explorations of the main and side cañons, and in sketching the ruins we had passed on our way up. Mr. Mindeleff made a survey of the ruin called the "White House," about five miles back; and Mr. Hillers took many excellent views of the scenery.

A large cave containing two ruins, one about 50 feet above the other, was discovered in a recess on the west side of the branch cañon about two miles south of our

camp, and sketches were made of it. This cave was situated high above the bed of the gorge, and the upper tier of the ruins was nearly, if not quite, 200 feet from the bed below. On our way down again several hieroglyphics were found on the flat face of the rock on the north side of the main chasm, but far above the place where we camped on the day we first entered it, and where we encamped the night before we left it. A few were also found about one quarter of a mile from the mouth of the cañon, and also on the north side. Both were copied, and form part of the records of the expedition.

Early in November, 1882, I made preparations for taking a party to Acoma, to make studies of that very interesting town and to collect some of the pottery made there, but on arriving at the place I found it full of small-pox, and was obliged to retire before the disease. I then proceeded to the head-waters of the Rio Grande, west of Santa Fe, to make a further and closer examination of the remarkable cave dwellings at the north of the Pueblo of Cochiti, and explored those which exist in the cañon called by the Mexicans "El Rito de los Frijoles," or, literally translated, "The Rite of the Beans." The Cochiti Indians called it Gunuye, or, as it was translated to me by the Indian guide, Juan Jose Montaya, "The Place where Customs and Rites are Prescribed." The cliffs on the north side of this cañon are perpendicular, or nearly so, and are composed of friable tufa, and vary from 50 to 100 feet in height above the foot-slope that runs down to the clear, cold, unfailing stream at the bottom. The bases of these cliffs have been hollowed into a great number of small caves, which appear to have been the dwellings of a race of Indians.

The cave in which I dwelt while studying the locality was circular in form, measuring about 15 feet one way, and 12 feet the other, the roof being dome-shaped and 9 feet high in the centre and blackened with smoke. It was excavated in a projecting buttress of rock, leaving a wall varying in thickness from 1 to 2 feet on the side next the cañon. The entrance was by a small door at the level of the ground,  $2\frac{1}{2}$  feet high, nearly 2 feet at the bottom, and considerably narrower at the top, so that by crouching down I could barely squeeze in. There was a larger opening on one side, which appeared to have been formed by the weathering of the rock. The lower part of this opening had been closed up with large stones by persons who had occupied the caves before me. This enclosure formed a bow-shaped recess with an opening to the outside above. This recess we used for a fireplace. Above this, one on each side, were two irregularly shaped holes, which looked as if they might have been used as windows, but were not over 1 foot in diameter. In the wall,  $2\frac{1}{2}$  feet from the floor, were two small, shallow niches, flat on the bottom and arched above. The weather was cold, and snow eight inches deep was lying on the shady side of the cañon ; but we found the cave a very comfortable place to sleep in, a small fire keeping it very warm and cheerful.

In many of the caves that I examined there was a flooring of fine red clay, very neatly and smoothly spread. In several, thin layers still exist, and also the plastering of red and yellow clay with which the walls were finished inside. In some of them the lower part of the wall is of one color and the upper part and ceiling of another, the two colors being separated by a broad line of dark brown

or black which runs around the cave about two feet above the floor. The walls often contain small niches. Sometimes a low seat is left around on one side of a cave, and in several cases there were smaller caves behind the principal ones, but with extremely small doors of communication between them. In some cases the cliff has fewer caves, and these few are placed higher up in the face of the cliff, while below them are small rectangular spaces that appear to have been hollowed out of the rock and smoothed to form the real wall of a chamber. That such a conclusion is correctly inferred is shown by the following facts, viz.: There still remain distinct traces of the red and yellow clay plastering on these walls. There are rows of small round holes above these smoothed places.

There are considerable quantities of roughly squared stone at the foot of the cliff immediately below the caves. These stones indicate that they were formerly laid in a wall in front of the cliff. The rafters for supporting the roof had their foothold on this mason-work, while their inner ends rested in the holes above the smooth wall. Thus was formed a lower room with a front and sides of artificial wall resting against a back of natural wall. In some cases there appear to have been two, and even three tiers of dwellings constructed in this manner. The caves above seemed to have been entered from the roofs of the top tier, although some of them had their entrances through openings within the outer houses, thus constituting the caves so many inner chambers to the outer front rows. The caves extend along the base of the cliffs on the north side of the cañon for a distance of about two miles, the rock in some places being full of them close together and two or three tiers high. In

others they are more sparsely scattered along its face. Nearly opposite to where the trail from Cochiti descends steeply into the cañon I found a number of caves that are externally finished with masonry of stone cemented with clay, of which a good deal remains standing. In several caves were to be seen the remains of smaller rafters in holes near the ceilings, which apparently extended across from one side to the other, and may have been used for hanging up articles of clothing, arms, or food. I was unable to find any arms or utensils, although bits of broken pottery and chips of obsidian were abundantly scattered over the ground. The ruins of six large circular chambers or *estufas*, and of several groups of dwellings built of stone, are distributed over the slope, which reaches from the foot of the cliffs on the north side of the small stream that flows in the bottom of the canon, and two deeply worn trails lead out of it. One conducts to a ruined pueblo which lies on the mesa, the other leading off towards San Ildefonso, an Indian pueblo which is still inhabited.

It is thus seen that there existed many tribes of people who had a claim to a civilization peculiar to themselves, which, when more studied and better understood, will bring us closer and closer to a history of our predecessors, and may give us a little insight into our apparently lost birthright.